



Brown, Tim <tim.brown@solvay.com>

FW: Solvay Class I Q/D analysis.

3 messages

Tim Martin <tmartin@airsci.com>
To: tim.brown@solvay.com
Cc: Rodger Steen <rgsteen@airsci.com>

Wed, Apr 25, 2012 at 3:19 PM

Tim,

For your records, the Q/D analysis was submitted to Josh Nall at WDEQ today.

-Tim

From: Kent Norville [mailto:knorville@airsci.com]
Sent: Wednesday, April 25, 2012 12:10 PM
To: josh.nall@wyo.gov
Cc: 'Tim Martin'
Subject: Solvay Class I Q/D analysis.

Josh;

Attached is the Class I FLAG Initial Screening Criteria (Q/D) methodology and analysis for Solvay.

Based on the current emission estimates, the Solvay project has Q/D values less than 10 for all nearby Class I areas.

Thus, we are not planning on doing analyses for the Class I visibility and other AQRV's for the Solvay project.

We are currently working on a protocol which we hope to submit within a couple weeks.

Please let me know if you have any questions or concerns.

Thanks

Kent Norville

KENT NORVILLE, PHD

SOLVAY2016_1.2_000286

ASSOCIATE AIR QUALITY SCIENTIST - AIR SCIENCES INC.


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 **2012_04_18_Q-D_V5.pdf**
890K

Kent Norville <knorville@airsci.com>

Wed, Apr 25, 2012

To: Josh Nall <josh.nall@wyo.gov>

Cc: Tim Martin <tmartin@airsci.com>, Tim Brown <Tim.Brown@solvay.com>, Rodger G Steen <rgsteen@airsci.com>

Josh;

Yes, the Package Boiler is the only new source.

And yes, we used the full PTE for the Q/D.

So the net PSD emissions increase would be lower.

Kent

From: Josh Nall [mailto:josh.nall@wyo.gov]

Sent: Wednesday, April 25, 2012 2:32 PM

To: Kent Norville

Cc: Tim Martin

Subject: RE: Solvay Class I Q/D analysis.

Kent, Thank you for the Q/D document. I will forward to the FLM for their feedback. A couple of things I'd like to confirm for my report to the FLM:

1) the only new source would be the New Package Boiler

2) all other sources listed in Table 1 are the sources that will be affected by the debottleneck. You are presenting the full PTE for SO₂/NO_x/PM using short-term limits projected to apply for those sources. If you were to present the PSD net emissions increase for those sources based on PTE minus past actuals, the emissions would be (much) lower?

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Thanks, Josh.

From: Kent Norville [mailto:knorville@airsci.com]
Sent: Wednesday, April 25, 2012 1:10 PM
To: josh.nall@wyo.gov
Cc: 'Tim Martin'
Subject: Solvay Class I Q/D analysis.

Josh;

Attached is the Class I FLAG Initial Screening Criteria (Q/D) methodology and analysis for Solvay.

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We are currently working on a protocol which we hope to submit within a couple weeks.

Please let me know if you have any questions or concerns.

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Kent Norville

KENT NORVILLE, PHD

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Brown, Tim <tim.brown@solvay.com>
To: Tim Martin <tmartin@airsci.com>

Thu, Apr 26, 2012 at 7:31 AM

Thanks!

[Quoted text hidden]

--

Tim Brown
Environmental Services Supervisor
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SOLVAY2016_1.2_000289



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April 20, 2012

Project No. 170-12

Mr. James (Josh) Nall
NSR Program Principal
Wyoming Department of Environmental Quality
122 West 25th Street
Cheyenne, WY 82002

Subject: Class I Area FLAG Initial Screening Criteria Analysis for Solvay Soda Ash Joint Venture
Green River, Wyoming Facility - New Boiler Project

Dear Mr. Nall:

The Solvay Soda Ash Joint Venture (Solvay) Green River, Wyoming facility proposes to install one 254 MMBtu/hr natural-gas-fired package boiler (new boiler) to provide steam/heat to the facility's production processes. This new boiler project will trigger Prevention of Significant Deterioration (PSD) review for particulate matter (PM, PM₁₀, and PM_{2.5}), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and greenhouse gases (GHG).

As discussed with the Wyoming Department of Environmental Quality (WDEQ) at a meeting on February 23, 2012, Solvay is providing the attached technical summary of a Class I Area FLAG Initial Screening Criteria analysis for its boiler project for WDEQ and Federal Land Manager (FLM) review prior to the submittal of an impact modeling protocol and PSD permit application to WDEQ. As discussed at the meeting, please provide this analysis to the appropriate FLMS for their review.

Under the FLAG Initial Screening Criteria methodology, agencies may consider an existing source located greater than 50 km from a Class I area to have negligible impacts with respect to Class I Air Quality Related Values (AQRVs), including visibility, if its total annual sulfur dioxide (SO₂), NO_x, PM₁₀, and sulfuric acid (H₂SO₄) emissions in tons per year (Q) from the project modification, divided by the distance in km (D) from the Class I area, are less than 10. Based on the annual emissions from the project modification, the Q/D for the project will be less than 10

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Mr. James (Josh) Nall
April 20, 2012
Page 2 of 8



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for all nearby Class I areas. Thus, the project would have negligible impacts with respect to Class I AQRVs, including visibility, and Solvay would not be required to perform any further Class I AQRV analyses. With this letter, Solvay is requesting a determination of whether this is a sufficient demonstration of negligible impact on the surrounding Class I areas for this Solvay source modification.

Sincerely,

Kent Norville

Kent Norville, Ph.D.
Atmospheric Scientist
Air Sciences Inc.

SOLVAY2016_1.2_000291

Class I FLAG Initial Screening Criteria Analysis for the Solvay New Boiler Project

Solvay Soda Ash Joint Venture (Solvay) proposes to install one 254 MMBtu/hr natural-gas-fired package boiler (new boiler) to provide steam/heat to the Green River, Wyoming facility's production processes and for other purposes, such as building heat. Currently, steam/heat is provided to the facility by two coal-fired boilers (Sources #18 and #19), which are routinely shut down for maintenance and thus are not operated at full annual capacity. As a result, production at the facility is also limited (i.e., bottlenecked) when steam is not available from the existing boilers to support production processes. With the addition of the new gas-fired boiler, additional steam will be available to the facility to supplement or replace steam from the existing boilers when they are not operating. As a result, several sources will be debottlenecked, allowing an increase in annual production at the facility. None of the short-term (hourly and 24-hour) process source capacities will change with this boiler addition.

The sum of the emissions changes from the new boiler, associated debottlenecked sources, and creditable contemporaneous emissions increases and decreases results in a significant net emissions increase of particulate matter (PM, PM₁₀, and PM_{2.5}), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and greenhouse gases (GHG), thus triggering Prevention of Significant Deterioration (PSD) review. This report provides a preliminary summary of the Class I area screening procedure, as outlined in the Federal Land Managers' (FLM) Air Quality Related Values (AQRV) Work Group (FLAG) Phase I Report—Revised (2010).¹

The Solvay facility is located in Section 31, T18N, R109W, approximately 20 miles west of the town of Green River, in Sweetwater County, Wyoming, as shown in Figure 1. The facility is located at 41.502°N latitude and 109.757°W longitude, which corresponds to 603.7 km Easting and 4,594.8 km Northing (zone 12) in the Universal Transverse Mercator (UTM) 1927 North American Datum (NAD27) system. Figure 2 shows a view of the facility.

¹ Natural Resource Report NPS/NRPC/NRR—2010/232; http://www.nature.nps.gov/air/Pubs/pdf/flag/FLAG_2010.pdf

Figure 1. Solvay Facility Location on a Regional Scale Map

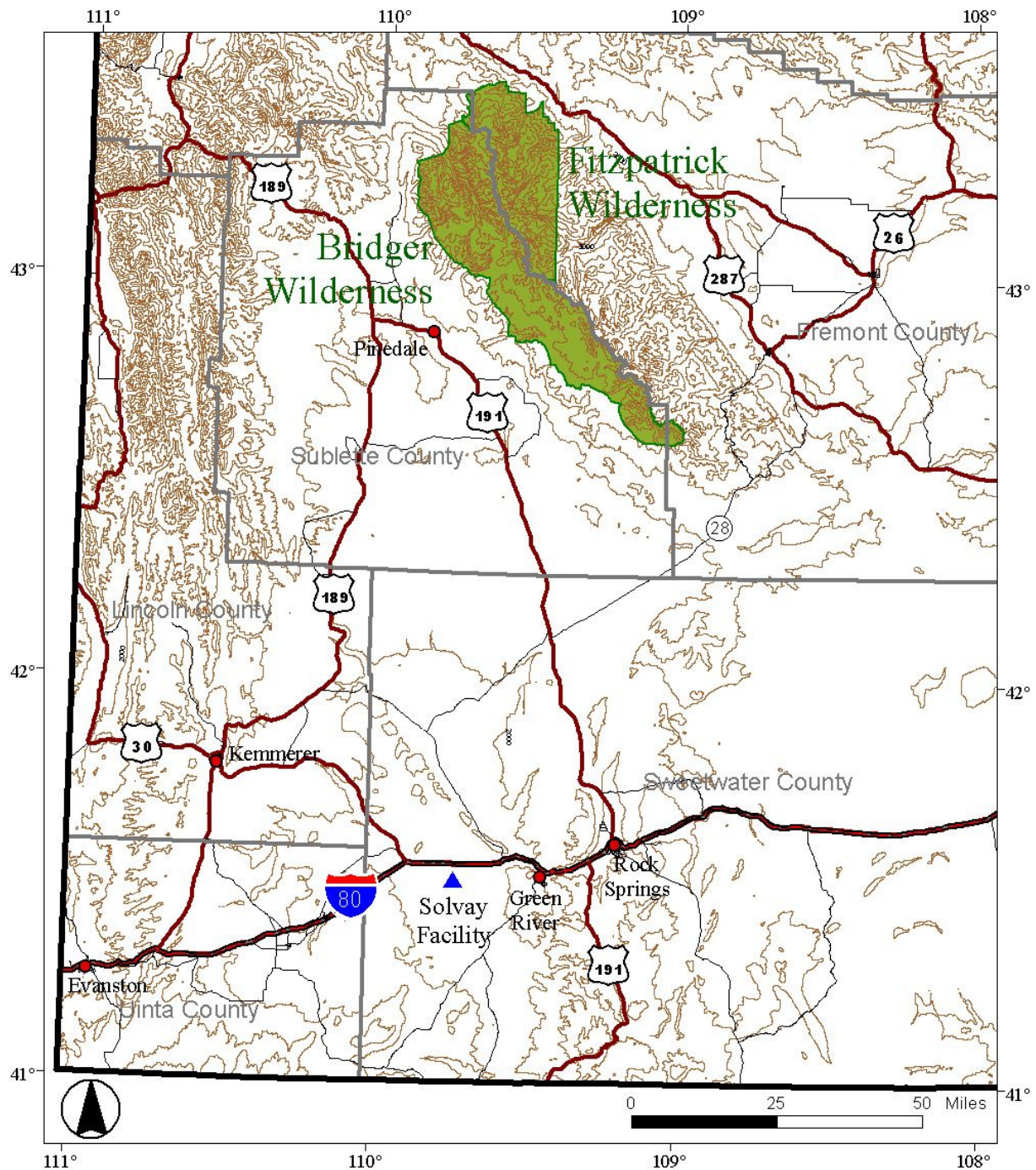


Figure 2. View of Solvay Facility

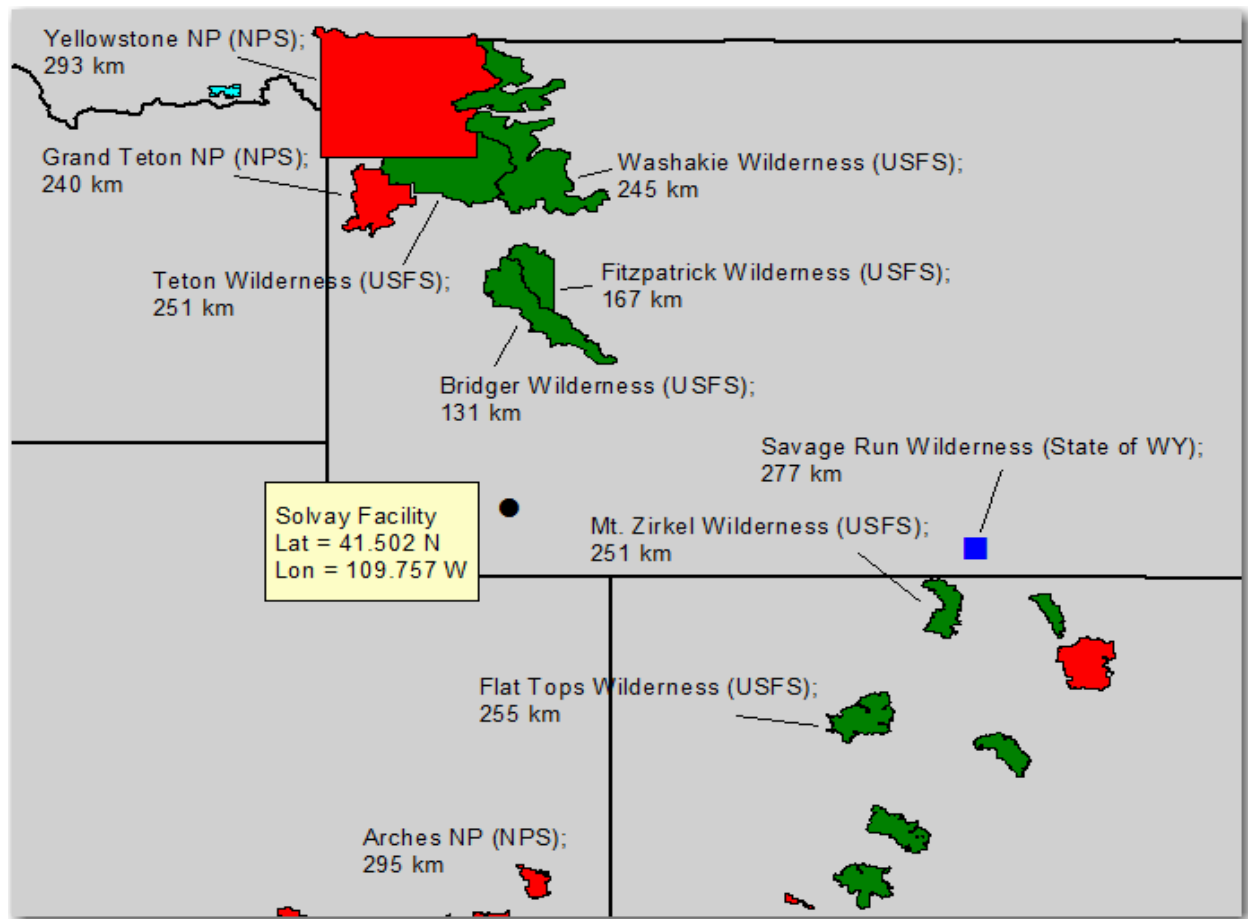


FLAG Initial Screening Criteria Methodology

Under the FLAG Initial Screening Criteria methodology, agencies will consider an existing source located greater than 50 km from a Class I area to have negligible impacts with respect to Class I AQRVs, including visibility, if its total annual sulfur dioxide (SO_2), NO_x , PM_{10} , and sulfuric acid (H_2SO_4) emissions in tons per year (Q) from the project modification, divided by the distance in km (D) from the Class I area, are less than 10. The total emissions from the modification must be based on the maximum allowable 24-hour emission rates, assuming continuous (e.g., 365 days/year) operation.

Figure 3 shows the location of the Class I areas with respect to the Solvay facility. All Class I areas are located greater than 50 kilometers (km) from the Solvay facility. Although it is not one of the 156 Federal Class I areas, the State of Wyoming has declared that the Savage Run Wilderness area must be managed as a Class I area; therefore, this wilderness area was also included in the Class I area screening analysis.

Figure 3. Location of Class I Areas within 300 Kilometers of the Solvay Facility



Project Emissions

Table 1 shows the anticipated project emissions. These estimates are conservative because the emissions for the new package boiler are based on existing emission rates, which have not taken into account Best Available Control Technology (BACT) limits. Annual emission rates are based on the maximum hourly rate applied over the entire year (8,760 hours/year). Emissions of H_2SO_4 from the project are insignificant and are not considered further.

Table 1. Solvay Boiler Project Anticipated Emission Rates for PM₁₀, SO₂, and NO_x

WDEQ Source ID	Source Description	Maximum Allowable Emissions					
		PM ₁₀		SO ₂		NO _x	
		(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)
---	New Package Boiler*	1.89	8.3	0.15	0.7	9.65	42.3
02A	Ore Crusher Building #1	1.60	7.0	---	---	---	---
06A	Product Silos - Top	0.30	1.3	---	---	---	---
06B	Product Silos - Bottom #1	0.51	2.2	---	---	---	---
07	Product Loadout Station	1.20	5.3	---	---	---	---
15	DR-1 & 2 Steam Tube Dryers	3.00	13.1	---	---	1.80	7.9
16	Dryer Area	0.90	3.9	---	---	---	---
17	"A" and "B" Calciners	30.00	131.4	1.00	4.4	116.00	508.1
46	Ore Transfer Station	0.71	3.1	---	---	---	---
48	"C" Calciner	8.00	35.0	---	---	15.00	65.7
50	"C" Train Dryer Area	0.70	3.1	---	---	---	---
51	Product Dryer #5	2.40	10.5	---	---	18.00	78.8
52	Product Silos - Top #2	0.50	2.2	---	---	---	---
53	Product Silos - Bottom #2	0.45	2.0	---	---	---	---
76	"D" Train Primary Ore Screening	2.45	10.7	---	---	---	---
79	Ore Transfer Point	0.84	3.7	---	---	---	---
80	"D" Ore Calciner	10.00	43.8	---	---	20.00	87.6
81	"D" Train Dryer Area	0.50	2.2	---	---	---	---
82	DR-6 Product Dryer	3.45	15.1	---	---	30.00	131.4
99	Crusher Baghouse #2	3.20	14.0	---	---	---	---
100	Calciner Coal Bunker	0.20	0.9	---	---	---	---
103	East Ore Reclaim Baghouse	0.33	1.4	---	---	---	---
104	West Ore Reclaim Baghouse	0.27	1.2	---	---	---	---
	Totals >	---	321.5	---	5.0	---	921.8
* Conservative value based on existing emission rate, which does not incorporate BACT limits. TPY rates based on maximum hourly rate applied over the entire year (8,760 hours per year).							

Results

Based on the emission rates from Table 1, the sum of the maximum annual PM₁₀, SO₂, and NO_x emission rates is 1,248 TPY. Table 2 shows the Q/D calculations for all Class I areas within 300 km of Solvay. At all Class I areas, the Q/D is less than 10; thus, the Solvay project will have negligible impacts on visibility and other AQRVs, and Solvay is not required to perform any further Class I AQRV analyses. Note that the Class I PSD increments will still need to be evaluated for the project.

Table 2. Q/D Calculations for Class I Areas within 300 Kilometers of Solvay

Class I Area	Agency	D (km)	Q/D	Less than 10?
Bridger Wilderness	USFS	131	9.5	Yes
Fitzpatrick Wilderness	USFS	167	7.5	Yes
Grand Teton NP	NPS	240	5.2	Yes
Washakie Wilderness	USFS	245	5.1	Yes
Teton Wilderness	USFS	251	5.0	Yes
Mt. Zirkel Wilderness	USFS	251	5.0	Yes
Flat Tops Wilderness	USFS	255	4.9	Yes
Savage Run Wilderness	WY	277	4.5	Yes
Yellowstone NP	NPS	293	4.3	Yes
Arches NP	NPS	295	4.2	Yes